

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 July 2005 (07.07.2005)

PCT

(10) International Publication Number
WO 2005/061749 A3

(51) International Patent Classification:
C22C 38/04 (2006.01) C22C 38/12 (2006.01)

(21) International Application Number:
PCT/JP2004/019468

(22) International Filing Date:
17 December 2004 (17.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-423329 19 December 2003 (19.12.2003) JP

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

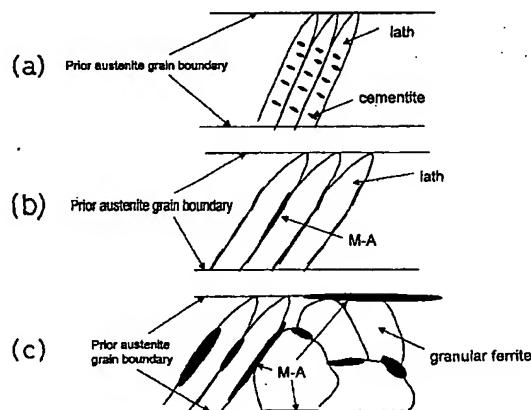
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
10 August 2006

[Continued on next page]

(54) Title: STEEL PLATES FOR ULTRA-HIGH-STRENGTH LINEPIPES AND ULTRA-HIGH-STRENGTH LINEPIPES HAVING EXCELLENT LOW-TEMPERATURE TOUGHNESS AND MANUFACTURING METHODS THEREOF



WO 2005/061749 A3

(57) Abstract: Ultra-high-strength linepipes having excellent low-temperature toughness manufactured by welding together the edges of steel plates comprising C of 0.03 to 0.07 mass%, Si of not more than 0.6 mass%, Mn of 1.5 to 2.5 mass%, P of not more than 0.015 mass%, S of not more than 0.003 mass%, Ni of 0.1 to 1.5 mass%, Mo of 0.15 to 0.60 mass%, Nb of 0.01 to 0.10 mass%, Ti of 0.005 to 0.030 mass%, Al of not more than 0.06 mass%, one or more of required amounts of B, N, V, Cu, Cr, Ca, REM (rare-earth metals) and Mg, with the remainder consisting of iron and unavoidable impurities and having a (Hv-ave)/(Hv-M) ratio between 0.8 and 0.9 at $2.5 \leq P \leq 4.0$, wherein Hv-ave is the average Vickers hardness in the direction of the thickness of the base metal and Hv-M is the martensite hardness depending on C-content ($Hv-M = 270 + 1300C$) and a tensile strength TS-C between 900 MPa and 1100 MPa; $P = 2.7C + 0.4Si + Mn + 0.8Cr + 0.45(Ni + Cu) + (1 + \beta)Mo - 1 + \beta$ ($\beta = 1$ when $B \geq 3$ ppm and $\beta = 0$ when $B < 3$ ppm).



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INTERNATIONAL SEARCH REPORT

Int'l Application No

PCT/JP2004/019468

A. CLASSIFICATION OF SUBJECT MATTER
INV. C22C38/04 C22C38/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C22C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, CHEM ABS Data, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA 2 429 439 A1 (NIPPON STEEL CORPORATION) 27 November 2003 (2003-11-27) claims 1-17 examples 1-5 page 27, line 24 - page 33, line 27	1-22
X	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 11, 30 September 1999 (1999-09-30) -& JP 11 172374 A (NIPPON STEEL CORP), 29 June 1999 (1999-06-29) abstract	1-14
A	WO 03/099482 A (NIPPON STEEL CORPORATION; TSURU, EIJI; ASAHI, HITOSHI) 4 December 2003 (2003-12-04) tables 1-4	15-22
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Patent family members are listed in annex.

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Date of the actual completion of the International search

8 June 2006

Date of mailing of the International search report

16/06/2006

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No PCT/JP2004/019468

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